

What is claimed is:

Sub a2

1. A valve for insertion into a ferrule having a given internal diameter, the valve having a sample cavity, a sampling orifice and a drain outlet, the sampling orifice and drain outlet being operatively connected to the sample cavity, a diameter of the sampling orifice being determined by the following formula:

$$D_{ov} \leq D_{fv} - [(D_{r1} + D_{r2}) + (D_{v1} + D_{v2}) + (D_{w1} + D_{w2}) + (D_{s1} + D_{s2}) + D_{iv} + D_{dv}].$$

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add a7